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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,649	03/30/2001	Steven M. Ruben	PZ012P1C2	6561

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EXAMINER	
MITRA, RITA	

ART UNIT	PAPER NUMBER
1653	

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/820,649	RUBEN ET AL.	
	Examiner	Art Unit	
	Rita Mitra	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,13,17-20 and 22-34* is/are pending in the application.

4a) Of the above claim(s) *1,13,17-20 and 22-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of the Claims

Applicants' preliminary amendment and provisional election filed on August 14, 2003 is acknowledged. Amendment to specification at page 1 has been noted. Claims 2-12, 14-16 and 21 have been canceled. New claims 25-34 have been added. Claims 1, 13, 17-20 and 22-24 are withdrawn from consideration because they are non-elected claims. Therefore, claims 25-34 are currently pending and are under examination.

Election/Restriction

Applicants' election with traverse of II Group 95 represented by original claims 11, 12 and 16 (now canceled), and new claims 25-34, drawn to polypeptides comprising amino acids 2-220 of SEQ ID NO: 105 filed on August 14, 2003, is acknowledged. The traversal is on the ground that even where patentably distinct inventions appear in a single application, restriction remains improper unless the examiner can show that the search and examination of these groups would entail a "serious burden." The traversal is also on the ground(s) that separate and diverse searches of sections I-X (Groups 1-910) directed to nucleic acids set forth in SEQ ID NO: 11-101; polypeptides set forth in SEQ ID NO: 102-192; antibody; method for gene therapy using polynucleotides and polypeptides; method for diagnosing pathological conditions related to polynucleotides and polypeptides; method for identifying a binding partner to polypeptide; method for identifying an activity using polynucleotides, a binding partner specific to polypeptides of SEQ ID NO: 102-192, would not be required. Applicants submit at pages 9-10 that with respect to a given sequence, a search of the claims of the groups directed to that sequence would also provide useful information for the claims of the other groups directed to that sequence, for example, in many if not most publications disclosing a protein, the authors also disclose nucleic acids encoding the protein, antibodies to the protein, and methods of making and using the same.

This is not found persuasive because a search of the polynucleotide claims would not and does not necessarily encompass claims directed to methods for selecting a compound which modulates the response induced by polypeptides; an antibody capable of binding to polypeptides.

The prior art pertaining to these patentably distinct subject areas is vastly different. For example, many publications provide no sequence data at all making it difficult if not impossible to establish a link between a given polynucleotide sequence and a corresponding polypeptide or related methods, therapies and antibodies. It would constitute an undue burden on Examiner to search claims directed to the polynucleotides of sections I, V, VIII, X, (Groups 1-91, 365-455, 638-728 and 820-910) and the distinct inventions of groups II-IV, VI, VII and IX, (Groups 92-182, 183-273, 274-364, 456-546, 547-637, 729-819) for precisely this reason. For example, the prior art is replete with examples of proteins, which have been isolated and purified, but only much later sequenced and the corresponding cDNA cloned. Therefore, on its face, a search of the polynucleotide claims would not encompass claims to the methods using the polypeptides for identification of compounds and antibodies selective for the polypeptide, etc. Consequently, a search of claims directed to these patentably distinct groups together would constitute an undue burden.

At page 9 Applicants urge that the search of all sections I-X would not entail a serious search burden on the Examiner and therefore, the restriction is improper. Sections I-X are directed to wholly different subject matter as shown by different classification across the Groups. Additionally, the issues of the subject matter of each Group are different. Therefore, examination of all groups would present a serious search burden, thus the restriction requirement is maintained.

Applicants submit (page 9) that since the searches for proteins, nucleic acids encoding such proteins, antibodies to such proteins, and methods of making and using the same commonly overlap. Examiner's assertion that the combined search and examination of such compositions and methods using the same would entail a serious burden has been rebutted. In response, it should be noted that the inventions of nucleic acids, proteins and antibodies are distinct and differ by their chemical entity. Regarding the search overlapping of section I and II it should be noted that a search for a protein product requires a search covering class 530/350, 300+, whereas a search for the recombinant production of the protein requires a search that covers 435/69.1, 252.3, 320.1, 325 and 536/23.5. Therefore, the search for section I and II doesn't largely overlap as shown by the different classification across the groups.

Applicants have requested (page 10) that upon indication of allowable subject matter, the Examiner rejoin the claims of Group 95 with process claims of Groups 277, 459, 550 and 732.

In response the examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of In re Ochiai, In re Brouwer and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

The restriction requirement is still deemed proper and is therefore made **FINAL**.

In view of the foregoing, claims 1, 13, 17-20, 22-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention. Therefore, claims 25-34, SEQ ID NO: 105; Gene 4 (HAUAQ39) are examined on the merits.

Priority

Applicants' claims for domestic priority under 35 U.S.C. 119(e) is acknowledged. As the list of related files is extraordinarily lengthy, and computer readable formats of the sequence listings for the applications are not all available, Applicants are requested to identify the priority applications disclose the elected sequence SEQ ID NO: 105, and to state where in those applications the disclosure is located by page and line number. Absent factual evidence to the contrary the filing date, March 30, 2001 will be considered the priority date.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title"

Claims 25-34 are rejected under 35 U.S.C. 101 because the specification does not provide either a specific or substantial asserted utility or a well-established utility, and thus, does not support the claimed invention. The claimed proteins are not supported by either a specific asserted utility or a well established utility because the specification fails to assert any utility for the claimed polypeptides or the encoded proteins and neither the specification as filed, nor any art of record discloses or suggests any activity for the claimed polypeptides or the encoded proteins such that another non-asserted utility would be well established. Note, because the claimed invention is not supported by a specific asserted utility for the reasons set forth above, credibility cannot be assessed.

The specification, on page12 (gene 4) and page 127 (Table 1) describes clone HAUAQ39 (ATCC NO: 209145) to which the instant invention relates. The specification also asserts (page 12) that the polypeptides and polypeptides encoded by the polynucleotides of the invention are useful as reagents for differential identification of the tissues or cell types present in a biological sample and for diagnosis of diseases and conditions, which include osteoporosis or any of a variety of diseases that involve wasting of bone or muscle. Further specification indicates that for a number of disorders of the tissues or cells, particularly skeletal and muscular systems, expression of this gene may be routinely detected, relative to the standard gene expression level, i.e., the expression level in healthy tissue or cell. However, the specification fails to provide any description of how to use such tissue or cells for expression or how such expression would have been assessed. In this regard, it is noted that pages 12-13 refer to various tests and diseases, but there is no explanation of, e.g., how or what would have been affected by the polypeptide, or how one would have used such information gleaned from expression or data from any tests or assays. For example, the specification asserts that expression in muscular tissue indicates that polypeptides expressed therein are useful for the detection, treatment, and/or prevention of various muscle disorders, such as muscular dystrophy, cardiomyopathy, fibroids, myomas, rhabdomyosarcomas, as well as diseases involving wasting of the muscular tissue.

Based on the specification (pages 12-13), neither any biological activity has been set forth for the polypeptide of clone HAUAQ39 nor has any use for the polypeptide itself been provided. Only speculative biological activities have been provided on page 154-161 and 161-167 of the specification. In examples 1-29, it appears that these experiments have not been performed. The examples are not written in the past tense. Therefore, they appear to be prophetic examples ((MPEP 608.01 (p)). For example, the use of the protein for further research is described here (page 154-159). This use is not a patentable utility because one skilled in the art should not have to discover for themselves the use of the claimed proteins. This situation requires carrying out future research to identify or reasonably confirm a "real world" context of use and therefore does not define specific and substantial utility.

The specification at page 167 indicates that the polynucleotides or polypeptides can be used as a nutritional source of polypeptides. This use is considered to be a "throw away" utility

and does not distinguish the claimed polypeptide over any other polypeptide. The utility is not specific or substantial.

Other activities that the protein is asserted to exhibit are listed throughout page 157-159 of the specification. However, these activities are speculative absent factual scientific data to demonstrate same. In summary, the polypeptides and encoded proteins claimed do not have a credible, specific or well-established or even demonstrable utility and therefore lack utility under 35 U.S.C. 101.

Claims 25 and 26 are drawn to an isolated protein comprising amino acid residues 2-220 of SEQ ID NO: 105 and amino acid residues 1-220 of SEQ ID NO: 105 respectively. The specification does not describe the functional properties of the entire full-length protein or its mature form, and the structural information is limited (see next paragraph). While the specification enumerates several known assays for biological activity (p. 189-208, Examples 11-22), it does not guide the selection of a specific assay that would be used to screen the biological activities of the claimed polypeptides for which no known activity is explicitly disclosed nor demonstrated.

Claims 30 and 31 are drawn to proteins encoded by the cDNA of clone HAUAQ39. It is not apparent from the description of the clone (specification page 12-13) what is the protein structure, aside from its amino acid sequence, and/or its function. Based on the specification (page 12-13, 161-167) it is not apparent what activity the claimed protein possesses or how a person skilled in the art would have used the claimed protein based on the disclosure

Claims 27 and 32 are drawn to a protein of claims 25 and 30 respectively, which comprises a heterologous polypeptide sequence. The specification fails to provide a description of the structure, and /or function of the heterologous protein. Without any description of the unrelated sequence that has recombined with the gene how one would know the utility of the heterologous polypeptide.

Claims 28 and 33 are directed to a composition comprising the protein of claims 25 and 30 respectively and a pharmaceutically acceptable carrier. The speculative composition and their administration and dosage are listed in the specification (pages 208-210, Example 23), however,

when the proteins claimed lack a credible, specific or well established utility and method of use, the composition of those proteins would also lack utility under 35 U.S.C. 101. Applicants assert on page 208 that the composition would be useful in the treatment of conditions associated with disease. Examples of many therapeutic methods have been described in pages 208-210 but the specification does not indicate explicitly the correlation of the role of the protein or the composition containing the protein to a specific disease treatment, nor demonstrate the successful treatment of any disease or conditions.

Claims 29 and 34 are drawn to a protein produced by the method comprising expressing the protein by a cell and recovering the protein. Specification on page 152-154 describes the vectors and host cells but does not indicate the function of the expressed protein.

In the instant case, the failure of the specification to specifically identify why the claimed invention is believed to be useful renders the claimed invention deficient under 35 USC 101. No specific biological activity has been identified for the protein set forth in SEQ ID NO: 105 other than a statement that the polypeptides of the invention are useful as reagents for differential identification of tissues (p. 12 and Example 3), however specification has not demonstrated the tissue distribution. The person having ordinary skill in the art would not be able to identify any specific activity for the protein comprising or related to SEQ ID NO: 105 based on its structure alone for the reasons set forth above. General statements that a composition has an unspecified biological activity or that does not explain why a composition with that activity is believed to be useful fails to set forth a "specific utility." Brenner v. Manson, 383 US 519, 148 USPQ 689 (Sup. Ct.1966) (general assertion of similarities to known compounds known to be useful without sufficient corresponding explanation why claimed compounds are believed to be similarly useful is insufficient under 35 USC 101).

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25-34 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial or well established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention so that it would operate as intended without undue experimentation.

The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description, enablement and best mode for practicing the claimed invention.

The specification is objected to because the biological material used in the claimed process is a microorganism clone, which has been deposited with American Type Culture Association and has the accession number ATCC 209145. Since the clone is essential to the practice of the claimed invention it must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. If the organism is not so obtainable or available, the requirement of 35 U.S.C. 112 may be satisfied by a deposit of the microorganism.

That the applicants have apparently incorporated specific references into the specification does not eliminate the issue of public availability and permanence as the vectors cited in the references and the references per se do not indicate, public availability of the starting materials in as much as the biological materials mentioned in a publication may be proprietary and not publicly available.

It is apparent that the claimed clone is essential to the claimed invention and the deposit is necessary for an adequate written description, enablement, and best mode for the claimed invention, because the specification lacks a specific description or demonstration of hundred percent reproducibility of the claimed protein from the deposit. Because of the overlapping sequences the deposit is not 100% reproducible. Specification indicates in Example 1 (page 176, lines 7-10) that typically each ATCC deposit sample cited in Table 1 comprises a mixture of approximately equal amounts (by weight) of about 50 plasmid DNAs, each containing a different cDNA clone; but such a deposit sample may include plasmids for more or less than 50 cDNA clones, up to about 500 cDNA clones. However, Example 1 only gives a generic description of isolation of a selected clone from the deposited sample, it fails to demonstrate the selection of a

single clone from the mixture of cDNA clones from the deposit. Thus, the specification does not disclose a repeatable process to obtain the claimed clone from the deposit.

The specification on page 3, indicates that clone HAUAQ39 (see Table 1) was deposited with American Type Culture Collection (ATCC), Manassas, VA, and was given Accession No. ATCC NO: 209145. The deposit was made under the terms of Budapest Treaty on the international recognition of the deposit of microorganisms for purposes of patent procedure. However Applicants fail to provide a receipt for the certificate of deposit. It is apparent that the claimed deposit material is essential to the claimed invention and the deposit is necessary for an adequate written description and enablement for the claimed invention. Applicants should provide a photocopy of the receipt of the certificate of deposit. The Office notes that during the pendency of this application, access to the invention will be afforded to the Commissioner upon request where all restrictions upon availability to the public will be irrevocably removed upon granting of the patent and that the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer where the deposit will be replaced if it should ever become inviable.

Claim 30-34 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objection to the specification.

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 27 and 32 are rejected under 35 USC 102 (b) as being anticipated by Collins et al. Collins et al. teach a KDEL receptor protein, having 99.2% sequence identity to amino acid residues 2-220 of SEQ ID NO: 105 (see alignment result 1, GenEmbl database, Accession NO:

HS434P1B, February 2, 1999). This sequence is considered for the polypeptide sequence heterologous to SEQ ID NO: 105 (claims 27, 32). Thus anticipating claims 27 and 32.

Claims 27 and 32 are rejected under 35 USC 102 (b) as being anticipated by Collins et al. Collins et al. teach a KDEL receptor protein, having 99.2% sequence identity to amino acid residues 1-220 of SEQ ID NO: 105 (see alignment result 1, GenEmbl database, Accession NO: HS434P1B, February 2, 1999). This sequence is considered for the polypeptide sequence heterologous to SEQ ID NO: 105 (claims 27, 32). Thus anticipating claims 27 and 32.

Conclusion

No claims are allowed.

Inquiries

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rita Mitra whose telephone number is (703) 605-1211. The Examiner can normally be reached from 9:30 a.m. to 6:30 p.m. on weekdays. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Christopher Low, can be reached at (703) 308-2923. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Fax Center number is (703) 308-4242. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Rita Mitra, Ph.D.
December 1, 2003

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